NEBOSH International General Certificate in Occupational Safety and Health

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1.0 - Transport Hazards and Risk Control.

Overall aims.

On completion of this Unit, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

1. Explain the hazards and control measures for the safe movement of vehicles in the workplace.
2. Outline the factors associated with driving at work that increases the risk of an incident and the control measures to reduce work related driving risks.

Recommended tuition time.

Recommended tuition time for this unit is not less than 4 hours.

1.1 - Introduction.

Workplace transport is used in all sectors of industry. It ranges from agricultural machinery to forklift trucks and is found everywhere from construction sites to your local DIY store.

Used properly, it is an effective and valuable tool. When used ineffectively or improperly and/or by inexperienced operators, it can kill.

The combination of pedestrians and moving vehicles can be lethal if adequate safety measures are not in place. Both parties can be so involved in what they are doing that they may not pay proper attention to others in the vicinity as they are concentrating on their own actions, or are deep in thought.

Whether in a warehouse, factory, office or out in the street where the general public can be affected, suitable risk assessments must be undertaken and adequate control measures must be put in place to minimise the risk to all involved.

In this unit, we will look in more detail at the type of hazards and control measures which are needed in order for the employer to provide a safe working environment, in which employees can carry out their duties with minimum risk to themselves and other in the working environment.

In the UK alone, an average of around 100 people are killed and 2,500 are seriously injured each year through workplace accidents. Alongside the personal distress caused by accidents to the individual concerned, the employer, haulier or owner will have to stand the financial implications an accident will bring.

Slips, trips and falls account for the majority of accidents to pedestrians, and the more serious accidents between pedestrians and vehicles can often be associated with excessive speed or unsafe practices such as lack of training and awareness. Many of the risks associated with these hazards can be significantly reduced by effective management systems.

The UK Workplace (Health, Safety and Welfare) Regulations 1992 (W(HSHW) Regs 92) cover a wide range of legal requirements relating to workplaces;

Including:

- Ventilation
- Lighting.

- Space and room dimensions.
- Cleanliness.
- Windows and the ability to clean them safely.
- Sanitary conveniences.
- Washing facilities.
- Drinking water and
- Rest rooms.

These regulations also tackle the condition of floors and traffic routes to ensure safety of employees, both in terms of slips, trips and falls and the segregation of pedestrians and moving vehicles.

1.2 - Vehicle Operations.

Vehicle operations.

Typical hazards causing:

- Loss of control and overturning of vehicles;
- Collisions with other vehicles, pedestrians or fixed objects,

And the conditions and environments in which each hazard may arise.

1.3 - Control Strategies for Safe Vehicle Operations.

Control strategies for safe vehicle operations:

- Risk assessment;
- Suitability and sufficiency of traffic routes;
- Management of vehicle movements;
- Environmental considerations (visibility, gradients, changes of level, surface conditions);
- Maintenance of vehicles;
- Driver protection and restraint systems;
- Protective measures for people and structures (barriers, markings, signs, warnings of vehicle approach and reversing);
- Site rules;
- Selection and training of drivers;
- Management systems for assuring driver competence including local codes of practice.

1.4 - Collisions with Vehicles.

The UK Workplace Regulation 17 states that every workplace shall be organised so that vehicles and pedestrians can move safely.

Workplace Transport refers to any vehicle or piece of mobile equipment, which is used by employers, employees, self-employed people or visitors in any workplace.

Workplace transport is the second biggest cause of fatal accidents in the workplace and all industries are affected by this.

Accidents as a result of a pedestrian colliding with a vehicle can take place at the work place, either within the premises or on access roads to and from the site or around buildings. Invariably, these accidents have more serious consequences.

There are particular problems where there is no defined separation between access and egress for both pedestrians and vehicles.

Other factors may include:

- Blind corners.
- Poor lighting.
- Lack of warning signs and audible alarms.

Potential causes of accidents can be due to:

- The driver - inadequate training, instruction and supervision.
- The vehicle - poor maintenance.
- The System of Work - inadequate risk assessments.

Types of accidents can be due to:

- Forward motion.
- Reversing.
- Overturning.

Other hazards associated with vehicles include:

- High pressure fluid injection.
- Ergonomics.
- Puncture and injection.
- Biological.
- Cutting and severing.
- Fire and explosion.
- Electricity.
- Crushing.
- Vibration.
- Impact.
- Noise.

Many different types of vehicles are used in the workplace, from forklift trucks to dumper trucks and heavy goods vehicles.

A key factor in many accidents is the lack of competence and driver training.

Common accidents are:

- Vehicles overturning due to being driven at speed;
- A load incorrectly balanced;
- Driving into excavations; and
- Runaway vehicles which have been left with the engine running, whilst unattended.

Employers should only allow trained and designated personnel to operate transport vehicles and firm disciplinary action should be taken against unauthorised use of work transport equipment.

It is recommended that the training provided is accredited by a recognised body and that refresher

training is given to all drivers at regular intervals and with the introduction of new vehicles and equipment.

Regulation 3 of the UK Management of Health and Safety at Work 1999 requires that employers assess the risks to workers and anyone else, for example members of the public, who may be affected by the activities being undertaken.

These requirements apply to all work activities, including those involving transport, e.g. driving, loading, sheeting and maintenance.

These risks can be identified, for example by asking the following:

- Is there a danger of people being struck or run over by moving vehicles, and what is the cause?
- Is there a danger of people falling from vehicles, for example, while gaining access or alighting from them or while involved in loading/unloading or other activities, and what is the cause?
- Is there danger of being struck by an object falling from a vehicle, and what is the cause?
- Is there a danger of the overturning, and what is the cause?

In looking for the hazards, areas to examine should include:

- The vehicle themselves. Are they safe and suitable for the work for which they are being used? Are they properly maintained? Do the vehicles need to be replaced with new, safer vehicles?
- The routes or roadways used by the vehicles. Are they safe and suitable for the type and number of vehicles using them? Has account been taken of nearby hazards and obstructions?
- The action of the drivers. Have they been trained and deemed competent? Are they using safe working practices?
- The activities of others in the vicinity of the vehicle; contractors, members of the public, visiting drivers, etc.

1.5 - Control Measures for Safe Operation of Vehicles.

Control measures for safe operation of vehicles.

The control strategy covers 3 areas:

- Engineering
- Management
- Behavioural

1.6 - Engineering.

***Engineering controls* should include all aspects of normal maintenance and should look at the following in particular:**

- Speed controls.
- ABS braking systems.
- Anti-jack knife systems.
- The use of convex mirror systems at blind corners.
- Spillage control and drainage systems.
- Designated walkways.

- Fencing and guarding.
- Slip-resistant flooring.

The UK Provision and Use of Work Equipment Regulations 1998 (PUWER) deal with work equipment used for transport in the workplace and regulation 5 states that all such equipment is maintained in an efficient state, in efficient working order and in good repair.

1.7 - Management.

Management controls **should be integrated for other statutory requirements and should encompass the following systems:**

- Risk assessments - to identify what is a problem, what is in place at the moment and what needs to be put into place.
- The use of traffic systems with appropriate signs which can be easily understood.
- Maintenance systems such as planned preventative maintenance.
- The use of information, instruction, training and supervision. These should be maintained and reviewed as a part of the management systems.
- Staff selection and specific training e.g. FLT drivers, banksmen, crane operators.

17 out of every 20 deaths have been shown to be due to management failures, such as:

- Faulty design;
- Defective management structure;
- Inadequate management structure;
- Lack of training, instruction, information.

1.8 - Behavioural.

Behavioural controls should always start at the management level and this should be given by example. Standards that are required by the legal process should be aimed for, and in most cases, should be surpassed.

The required standards should be communicated to all involved in the process, and should be looked at in the following:

- Supervision - any members of staff trained as supervisors should understand their responsibilities.
- Training should be carried out at all levels of the organisation, and should be indicated. by risk assessment, statutory requirements, etc. This training must be relevant, on-going and recorded.
- Controls can be achieved in conjunction with design and layout of the working environment.

Control strategies for vehicle operations will involve risk assessments to determine where and how accidents are likely to happen.

External and internal traffic routes need to be assessed and thought should be given to the following:

- Traffic routes, speed limits, visibility, loading and storage areas.
- Separation of vehicles and pedestrians.
- One-way traffic systems.

- Environmental conditions such as the weather, road conditions, visibility.
- Parking areas for staff and visitors.
- Road markings and suitable, visible traffic signs within the site and on access roads leading to and from the site.
- Pedestrian crossing areas.
- Induction training for site visitors, employees and contractors.

1.9 - Traffic Routes.

Traffic routes should be of sufficient design to allow safe movement of vehicles and pedestrians.

The following factors should be considered:

- Sufficient number of routes should be provided for the volume of traffic and pedestrians.
- Sufficient separation of vehicles from doors and gates should be provided for pedestrians.
- If separation cannot be afforded in mixed areas, then pedestrians have right of way.
- Traffic routes should be appropriately signed for health and safety purposes.

If there is likelihood of collision, then the design factors should indicate the required strength and material to be used. The required standards, such as British Standards Institutes (BSIs) should be consulted.

1.10 - Parking.

The process of planning and controlling of all vehicles, but in particular visiting vehicles, must be approached with good preparation and planning. Parking for most organisations is something of a headache.

In determining suitable parking areas, consideration must be given to other hazards by not parking near fire exits or emergency escape routes.

The parking of designated vehicles in specific parking areas, such as delivery vehicles in waiting bays, should be implemented with sufficient notice and visible signs should be put in place.

Procedures to ensure the vehicle is braked securely, or even chocked to stop movement when, for example, the vehicle is side loading with Forklift Trucks should be a matter of safe working in practice.

1.11 - Segregation of Vehicles & Pedestrians.

Wherever possible, the ideal solution is to separate vehicles and pedestrians.

The recognised systems for separation are numerous, but consideration should be given to the following:

- Barriers - construction, positioning, etc.
- Walkways and markings - where possible, use traffic signs as are used on the highway. Familiarity will stop confusion.
- Areas that require to be prohibited for emergency reasons or for health and safety reasons should be identified and systems put into place to monitor these.
- Loading bays should be constructed to allow pedestrians such as banks men to be able to seek

refuge as a minimum. Wherever possible, pedestrians should not be in a position where they may be at risk from these operations.
- Separation should be considered in areas of dense traffic. This could be afforded by separate gates and doors.

If segregation is not possible, then other systems need to be used. These will include such things as one-way systems, speed control, and mirrors.

Audible warning systems are another means of warning against hazards. However, these should be recognised by all staff and visitors (remember the requirements include **all who may be affected**, including people with disabilities).

1.12 - Safety Management Systems.

The elements of a good health and safety management system should include the following key points:

Planning, Organisation, Control,Monitoring and *Review*.

Planning:
Removes or reduces the risks by using appropriate control measures and stated working practices.

Organisation of staff:
By including them in the planning stages of work to be undertaken. Defining who is responsible for parts of the workplace and ensuring they take on the responsibility for maintaining good housekeeping, by keeping work surfaces clean and free from obstacles.

Control:
Means to record all activities such as cleaning and maintenance work. Ensure that all safety measures are in place where people are working on ladders, stairs and ensuring that warning signs are used and visible where floors have been recently cleaned.

Monitoring:
Includes carrying out regular safety checks and audits of cleaning and housekeeping procedures.

Reviewing:
Accident records to see if there have been any improvements and to identify any particular hazards arising.

1.13 - Examples of Control Measures.

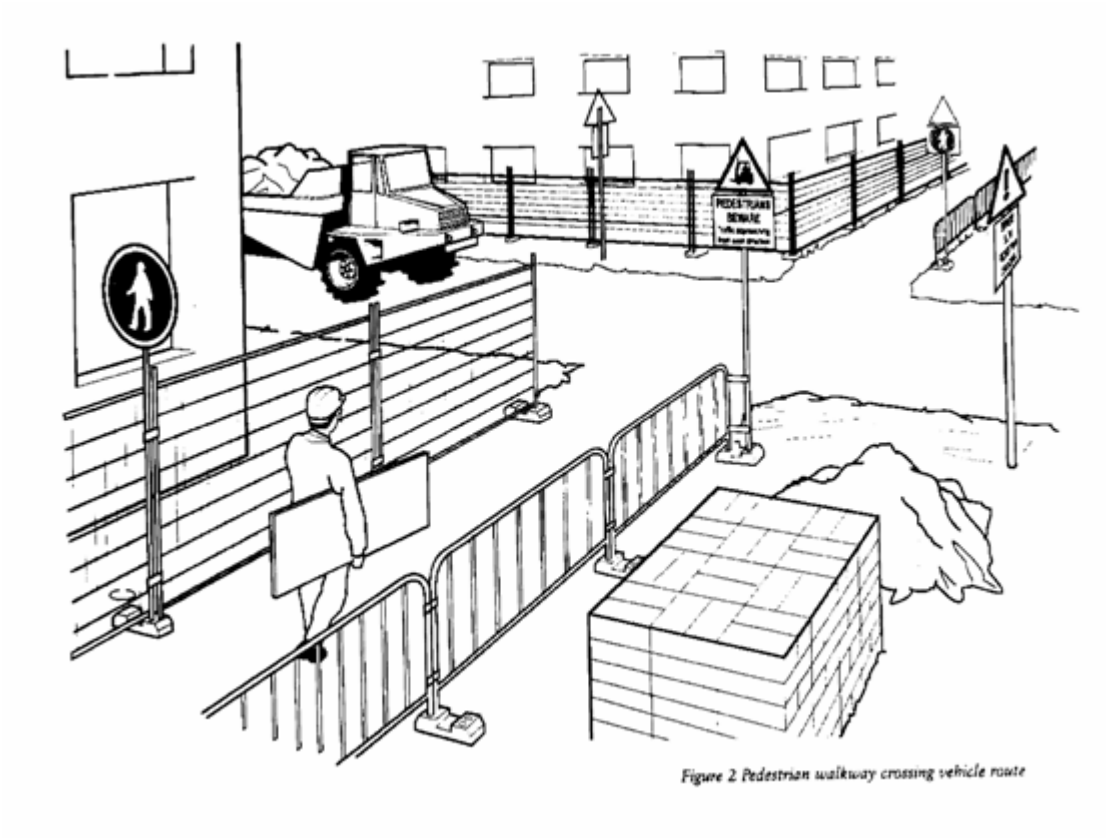
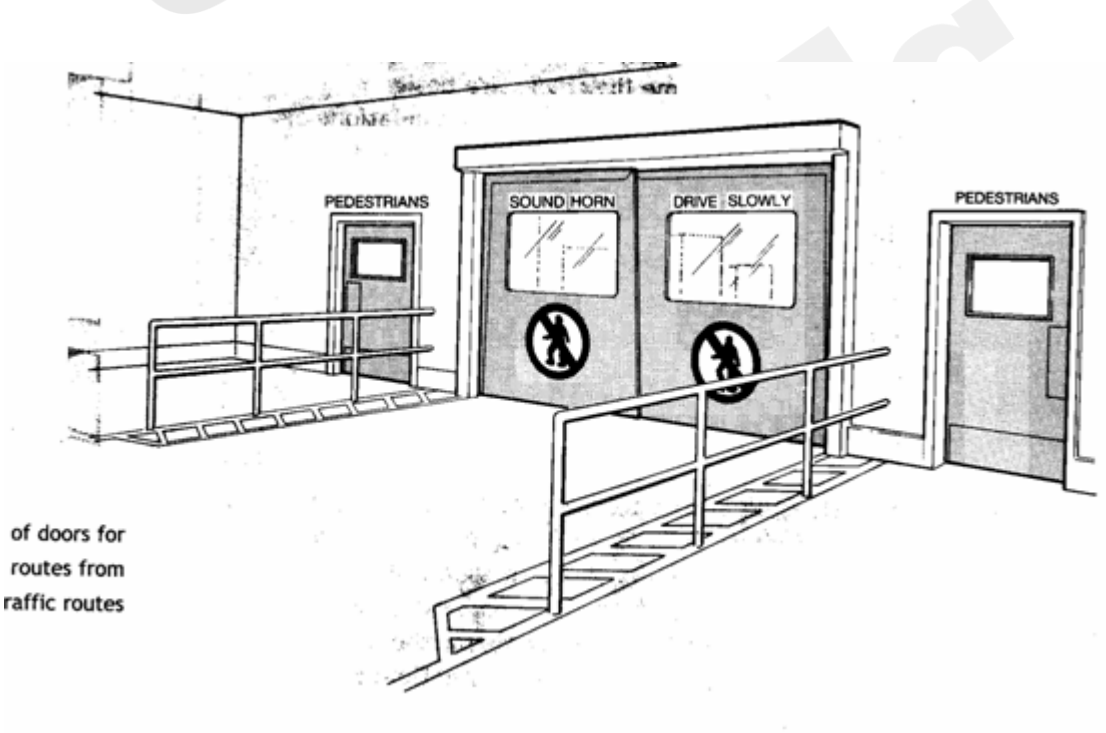


Figure 2 Pedestrian walkway crossing vehicle route

Figure 1. Building control.



of doors for
routes from
raffic routes

Figure 2. Segregation of vehicles and pedestrians.

1.14 - Video: Safe Traffic Routes.

1.14 Video: Safe traffic routes.

2.0 - The Extent of Work Related Road Injuries.

As the world of work changed so too has the demand of the customer, which means that the workforce is now more mobile than ever. Many workers, during their employment, are expected to drive at some point which has led to relatively high levels of occupational risk.

These additional risks are brought about as the workers are required to cover more miles than they would otherwise undertake out of work.

According to the HSE "at an annual mileage of more than 25,000 miles the level of risk of fatal injury are equivalent to those faced by workers in the HSE, priority, high hazards sectors such as construction or quarrying"

Organisations' see the direct costs of road traffic accidents as the cost or repairs and/or insurance claims but forget that the cost of an accident is always higher due to the indirect costs such as ill health, time in hospital, penalty points and lost licences. Therefore it is essential that driving activities are managed effectively through the development and introduction of policies, risk assessments and safe systems of work.

This need for management can be further stresses by the HSE statistics which estimate that up to half of all road traffic accidents involved somebody who was at work at the time. This may account for over 20 fatalities and 250 serious injuries per week.

There are certain factors that increase the risk of a road traffic incident, and these are:

- Distance travelled.
- Driving hours.
- Work schedules.
- Stress due to traffic.
- Weather conditions.

Each of the above factors will now be discussed in more detail in the following sections.

2.1 - Factors Affecting the Risk of a Road Traffic Incident - Distance.

Drivers are now able to travel further, quicker due to improvements in road conditions; this can lead to fatigue in drivers which is often increased by other poor drivers on the road.

There are limitations on the distance that ***Heavy Good Vehicle*** **(HGV)** drivers can travel based upon regulated driving hours; however private car drivers and small goods vehicle drivers have no such limitations.

The frequency and duration of the exposure to road hazards must be taken into consideration when looking at the risks involved with driving, and therefore with any risk assessment the further the worker travels, the higher the risk will be.

2.2 - Factors Affecting the Risk of Road Traffic Incidents - Driving Hours.

Drivers are at an increased risk, if the hours they spend driving are excessive. This leads to fatigue and a decrease in attention and reaction times, making them more prone to error.

The levels of fatigue are increased the more time the employee spends driving.

Reasons why a driver may end up driving excessively may be due to:

- Driving long distances without a break.
- Too many hours spent driving in a single day.
- Too little rest period between driving days.

It is recommended by the Highway Code that drivers should have a 15 minute break every two hours. The employer and the driver themselves share the responsibility for monitoring the drivers' hours as well as the breaks they take.

The European Community have set limits on driving hours of goods vehicles weighing over 35 tonnes.

Some of these limits can be seen below:

- Daily driving limit is 9 hours.
- Maximum driving limit is 4 and a half hour.
- Weekly driving limit of 56 hours.

These legal limits are enforced in commercial vehicles via the use of tachometer, but this is not the case of drivers of company cars. This is why it is necessary to monitor and control the driving distances with the use of safe systems of work and training for the drivers.

2.3 - Factors Affecting the Risk of Road Traffic Incidents - Work Schedules.

A well planned and organised work schedule allows for breaks to be taken at agreed points so the driver feels comfortable to take a break when they feel sleepy without fear of recrimination.

There are times during the day when it is estimated that the driver will be ate a higher risk of tiredness, these times are between 2am and 6am and between 2pm and 4pm. So these periods should be taken into account when work schedules are put together.

Work schedules set drivers jobs and times so if this is poorly organised the driver may feel pressured to speed and take risks in order to ensure that they meet their set times, leading to an increased risk of collisions.

2.4 - Factors Affecting the Risk of Road Traffic Incidents - Weather Conditions.

Weather, both good and bad, impact on the driving conditions and therefore on the risks involved in driving.

Bad weather such as heavy rainfall, snow and fog impact upon the drivers' visibility as well as their ability to brake within the required safe distances.

However where most would not welcome the above driving conditions, good weather also has its associated risks. Is a very real issue for drivers in good weather. This is felt more in the early mornings and evenings, especially in winter when the sun is lower. The sunlight reflects off road surfaces, other cars as well as the drivers' rear view and wing mirrors, reducing the overall visibility of the driver.

2.5 - Managing Work Related Road Safety.

Policy.

One of the best ways of managing work related road safety is to have a policy in place which stipulates the requirements of the company in regards driving to ensure the health and safety of their employees, as well as other road users who may be affected should an incident occur. The driving policy should be incorporated into the company health and safety policy so it is seen as being just as important as all other aspects of health and safety.

The policy should include:

- That the user of the vehicles has a current and valid driving licence, with a copy held on file.
- That the user has appropriate insurance with a copy held on file.
- A requirement that should the drivers circumstances change i.e. through gaining penalty points, loss of licence, changes in insurance, medical condition that affects their ability to drive safely they should inform their line managers/supervisors immediately.
- The requirement that the driver must ensure that their vehicles are road worthy if they are using their own vehicles to undertake work.
- A requirement that the vehicle has a valid MOT certificate (if applicable) cars under 3 years old will be exempt.
- An assessment of the risks faced by the drivers.
- The training records and competence of the driver.
- The procedures/strategy/controls in place to manage the risks.
- The taking of breaks whilst driving.
- Any breakdown procedures.
- The reporting procedure for problems and/or delays.
- What to do with regards weather conditions which may affect driving.

2.6 - Systems of Manage Work Related Road Safety.

One of the first steps needed is the requirement for the policy to be managed and implemented by competent, trained staff. Professional organisations such as the AA and the RAC have suitable expertise in this area and their guidance should be sought when the policy is developed.

An assessment of the competence and skills of the drivers is also required. This can be done internally or using external consultants. The drivers will all need to be assessed based on the driving and vehicle that they will be required to drive.

The organising of the driving requirements is also a vital aspect.

Systems need to be put in place to ensure that:

- Driving hours are not exceeded.
- Work schedules are planned.
- That driving distances are kept to a minimum.

These factors should all reduce the pressure and stress placed on the drivers and should in turn reduce the risks of work related road safety.

Health and safety systems should always be monitored to ensure that they are working effectively and efficiently and to show compliance with relevant legislation.

Monitoring should include:

- The competence of the drivers.
- The driving hours being undertaken.
- The legal responsibilities.
- The organisation and structure.
- The reporting of work related road safety incidents to ensure that all are reported and to identify any trends and ineffective systems (RIDDOR 1995 also requires that certain road traffic incidents be reported to the HSE).

2.7 - Organisation and Structure.

For any driving policy to be effective, it is essential that everyone knows what they are responsible for and information is shared between all parties, especially with regards legislation and good practices.

The responsibilities of all those involved needs to be stipulated especially in larger organisations where it is likely that various departments will have varying responsibilities for different aspects of driving at work, for example HR may hold training and medical records and select the drivers, the maintenance department ensure all vehicles are all road worthy and despatch may plan all journeys/routes the drivers take.

So from the above example it can be seen how complex a simple journey can be. If one department does not communicate or co-operate with another, a vehicle may be selected for a journey that is not roadworthy or a driver selected who should not be driving long distances due to health issues.

Everyone involved in the organisation should know their specific duties/responsibilities and these must be defined as well as the need to communicate and co-operate.

2.8 - Legal Responsibilities of Individuals on Public Roads.

There are certain legal responsibilities which must be adhered to whilst on the public roads.

These responsibilities are around:

- The vehicle condition.
- The fitness of the driver.
- Vision of the driver.
- Alcohol and drugs.
- General safety issues.

2.9 - Vehicle Condition.

Vehicles and trailers must comply withal the requirements of the **Road Vehicles (Construction and Use) Regulations (CUR) 1986** and **Road Vehicles Lighting Regulations (RVLR) 1989**.

2.10 - Fitness to Drive.

Fitness to Drive:

- Any health condition that is likely to affect a person's driving ability must be reported to the DVLA.
- No journey should be started if the driver is tired.

2.11 - Vision.

Vision:

- The driver must be able to read (with the aid of vision corrected lenses) a vehicle number plate, in good daylight from a distance of 20 meters (or 20.5 meters where the old style number plate is used).
- Slow down, and if necessary stop, if dazzled by bright sunlight.
- At night or in poor visibility, do not use tinted glasses, lenses or visors, if they restrict vision.

2.12 - Alcohol and Drugs.

Alcohol and drugs:

- Do not drink and drive in excess of the legal limit for alcohol.
- Do not drive under the influence of drugs or medicine.

2.13 - General Safety Issues.

General safety issues:

- Driver to use all due care and attention for others when in charge of a vehicle.
- Drivers must not tow more than their licence permits.
- Do not overload the vehicle or trailer.
- Secure the load and ensure it does not pertrude out dangerously.
- Drivers and other passengers must wear a seat belt or suitable restraining device for babies or small children in cars, vans and other good s vehicles, if one is fitted.

More information can be gained from the **Road Traffic Act 1991**, the new Highway Code and related legislation from the www.direct.gov.uk.

2.14 - Risk Assessment.

Risk Assessment.

Any risk assessment for work related road safety can be done using the standard 5 steps to risk assessment discussed within the NGC1 section.

The 5 steps are:

- **Step 1** - Identify the hazard.
- **Step 2** - Identify who might be harmed and how.
- **Step 3** - Evaluate the risk and decide on precautions.
- **Step 4** - Record the findings and implement.
- **Step 5** - Review and update.

2.15 - Step 1 - Identify the Hazards.

Step 1 - identify the hazards.

Here you are looking at the hazards associated with:

- **The driver** - are they competent, trained, are they fit and healthy, are they under the influence of alcohol or drugs?
- **The vehicle** - is it suitable, is it in good condition, does it have safety features installed?
- **The journey** - has the route been planned, scheduled, has the distance been calculated, the number of driving hours, has the volume of traffic or weather been taken into account?

2.16 - Step 2 - Identify Who Might be Harmed.

Step 2 - identify who might be harmed.

Who could be harmed should an incident on the road occur:

- Driver.
- Passengers.
- Other road users.
- Pedestrians.
- New drivers.
- Those driving long distances.

2.17 - Step 3 - Evaluate the Risk.

Step 3 - Evaluate the risk.

The risk will be determined by a number of factors such as:

- Time of day the driving will be done.

- The type of vehicle.
- Driving conditions.
- The distance and hours required.
- Traffic levels.
- Weather conditions.

Once the risk level has been established control measures can be put in place to either eliminate the risk or reduce it.

Control measures that can be implemented will be discussed in a later section of this lesson.

2.18 - Step 4 - Record the Findings.

Step 4 - Record the findings.

All significant findings from the risk assessment must be recorded and made available to all drivers.

2.19 - Step 5 - Review and Update.

Step 5 - Review and Update.

The risk assessment must be monitored and reviewed to ensure that everything is adequately controlled.

If there are any changes in legislation, any incident or any issues/changes with the vehicle or the driver then the risk assessment should be reviewed immediately to ensure it is still relevant and if not it must be updated.

2.20 - Evaluate the Risks.

When looking at the risks involved with work related driving, you could look at the following three aspects:

- The driver.
- The vehicle.
- The journey.

2.21 - Evaluate the Risks - The Driver.

Evaluate the risks: The driver.

When looking at evaluating the risks from the driver, this can be further divided into two aspects, the competence and fitness.

With competence you could look at the following.

Experience.

If it is a new driver or not, new drivers have good skills but their experience is low. Old/experienced drivers are at high risk as competence may decay over time. New drivers, driving in heavy traffic during a winter night will be a higher risk than in daylight hours. An experienced driver of a small car would present a greater risk if suddenly required to drive a larger or faster vehicle for the first time. Some drivers need to adjust to driving slower vehicles and ones with different centres of gravity or those who drive automatic or semi-automatic cars will need time to become accustomed to driving a car which requires the use of a clutch.

Fitness.
Fitness of the driver needs to assess their ability to see well at night, their ability to travel distances without breaks. Consideration should also be given to those at high risk of heart attacks of seizures. When looking at the fitness of the driver all pre-existing heath conditions such as back injuries and late term pregnancy should be taken into account as this could affect or influence the drivers' ability to concentrate on road conditions.

Training.
The level of training received can also affect the risk. Those who have not received any training may have developed bad driving habits that they are unaware of. Refresher training may help to eliminate this problem, or if not eliminate then reduce the risk considerably.

2.22 - Evaluate the Risk - the Vehicle.

Evaluate the Risk - the Vehicle.

Here many aspects should be taken into account such as:

- Size.
- Weight.
- Centre of gravity.
- Power.

These above factors can all affect the risk.
The vehicle must be suitable for the task at hand as well as for the driver required to use it. It must also be in good condition - it must have good brakes, its lights must all be functioning correctly, it must steer well and must have good suspension. If any of these items are not working as they are supposed the risk could be greatly affected.

Vehicles should all be fitted with safety equipment which should reduce the risk to the driver and other road users. Safety equipment would include items such as seat belts, ABS, run flat tyres, and escape kits and warning triangles.

2.23 - Evaluate the Risks - the Journey.

Evaluate the Risks - the Journey.

With the journey the following aspects should be taken into consideration when evaluating the risk:

- **The route** that is taken - in general motorways are safer than smaller bending roads.

- **Scheduling** - tiredness may be greater in the early mornings but there may be less traffic on the road.

- **Time** - enough time must be allocated for the journey - if insufficient time is given this may lead the driver taking chances with speeding etc. in order to get to the destination on time.

- **Weather conditions** - ice and snow, heavy rains can greatly increase the risks involved for the driver.

2.24 - Control Measures.

Control Measures.
The first step with the hierarchy of control is to eliminate the hazard altogether - this can be achieved through video conferencing so the parties involved do not need to drive to attend meetings or using rail or freight to transport goods/products to customers.

Control measures for the driver:

- Competency gained through training.
- Ensure they are in good health.
- Ensure they are capable of doing the work in a safe way.
- Have evidence of a driving licence/test certificate.
- Assess their competency through monitoring and documentation.
- Training including refresher training at regular internals.

Control measures for the vehicle:

- Ensure it is fit for the intended purpose.
- Ensure it is safe and in a fit condition.
- Ensure it is suitable for the task and includes safety equipment and features and these are properly fitted and maintained.
- Ensure safety critical information such as height and width is clearly displayed.
- Ensure it is ergonomically suitable for the driver - the seat should be comfortable and if not then additional support may be required.
- Ensure that the risks from whole body vibration is reduced through the use of air suspension seats.
- Seat belts and air bags are fitted, maintained and used.
- That users of two wheeled vehicles use safety helmets and protective clothing.
- That speed limits are adhered to and if necessary fitting tachometers to monitor speeds undertaken.

Control measures for the journey:

- Ensure it is planned and schedules.
- Plan the routes.
- Ensure schedules are realistic.
- Ensure sufficient times are given.
- Plan overnight stop over's and hotel accommodation if necessary especially if the journey time is extended due to bad weather or delayed due to poor traffic conditions.
- Adjust delivery schedules to reduce stress of drivers.

Incident reporting.
All incidents, accidents and near misses must be reported for all journeys to allow the organisation to

investigate these and analyse any trends to review their policies and procedures and add additional control measures so they can improve. Staff should be trained on how to recognise near misses as well as how to analyse them and learn from them to improve. Once any improvements have been made there should be feedback given to those concerned.

3.0 - Summary.

This summary section will refer you back to the learning outcomes and summarise the notes.

Identify the hazards that may cause injuries to pedestrians in the workplace and the control measures to reduce the risk of such injuries.

Hazards to pedestrians.

Typical hazards causing:

- Slips, trips and falls on the same level;
- Falls from a height;
- Collisions with moving vehicles;
- Striking by moving, flying or falling objects;
- Striking against fixed or stationary objects; and
- Conditions and environments in which each hazard may arise.

Control strategies for pedestrian hazards:

- Risk assessment.
- Slip-resistant surfaces;
- Spillage control and drainage;
- Designated walkways;
- Fencing and guarding;
- Use of signs and personal protective equipment;
- Information, instruction, training and supervision.
- Maintenance of a safe workplace
- Cleaning and housekeeping requirements;
- Access and egress;
- Environmental considerations (heating, lighting, noise and dust).

Identify the essential elements of a safe workplace management strategy.

Management controls should be integrated for other statutory requirements and should encompass the following systems:

- Risk assessments, to identify what is a problem, what is in place at the moment and what needs to be put into place.
- The use of traffic systems with appropriate signs which can be easily understood.
- Maintenance systems such as planned preventative maintenance.
- The use of information, instruction, training and supervision. These should be maintained and reviewed as a part of the management systems.
- Staff selection and specific training e.g. FLT drivers, banksmen, crane operators.

The elements of a good health and safety management system should include the following key points:

- Planning, Organisation, Control, Monitoring and Review.
- Planning removes or reduces the risks by using appropriate control measures and stated working practices.
- Organisation of staff by including them in the planning stages of work to be undertaken. Defining who is responsible for parts of the workplace and ensuring they take on the responsibility for maintaining good housekeeping, by keeping work surfaces clean and free from obstacles.
- Control means to record all activities such as cleaning and maintenance work. Ensure that all safety measures are in place where people are working on ladders, stairs and ensuring that warning signs are used and visible where floors have been recently cleaned.
- Monitoring includes carrying out regular safety checks and audits of cleaning and housekeeping procedures.
- Reviewing accident records to see if there have been any improvements and to identify any particular hazards arising.

Suggest ways of ensuring segregation of pedestrians and vehicles in the workplace and the appropriate control measures when segregation is not practicable

Wherever possible, the ideal solution is to separate vehicles and pedestrians.

The recognised systems for separation are numerous, but consideration should be given to the following:

- **Barriers:** Construction, positioning, etc
- **Walkways and markings:** Where possible, use traffic signs as are used on the highway. Familiarity will stop confusion.
- Areas that require to be prohibited for emergency reasons or for health and safety reasons should be identified and systems put into place to monitor these.
- Loading bays should be constructed to allow pedestrians such as banks men to be able to seek refuge as a minimum. Wherever possible, pedestrians should not be in a position where they may be at risk from these operations.
- Separation should be considered in areas of dense traffic. This could be afforded by separate gates and doors.
- If segregation is not possible, then other systems need to be used. These will include such things as one-way systems, speed control, and mirrors.
- Audible warning systems are another means of warning against hazards. However, these should be recognised by all staff and visitors (remember the requirements include all who may be affected, including people with disabilities).

Suggest suitable measures to ensure the safe operation of vehicles on site;

Control strategies for vehicle operations will involve risk assessments to determine where and how accidents are likely to happen.

External and internal traffic routes need to be assessed and thought should be given to the following:

- Traffic routes, speed limits, visibility, loading and storage areas.
- Separation of vehicles and pedestrians.
- One-way traffic systems.
- Environmental conditions such as the weather, road conditions, visibility.
- Parking areas for staff and visitors.
- Road markings and suitable, visible traffic signs within the site and on access roads leading to and from the site.
- Pedestrian crossing areas.

- Induction training for site visitors, employees and contractors.

Question 1.	
Factors that may contribute to collisions with vehicles include:	
Multiple Choice (HP)	
Answer 1:	Blind Corners
Response 1:	
Jump 1:	This page
Answer 2:	Poor lighting
Response 2:	
Jump 2:	This page
Answer 3:	Lack of warning signs and audible alarms
Response 3:	
Jump 3:	This page
Answer 4:	All of these
Response 4:	
Jump 4:	Next page

Question 2.	
Please select the correct missing definition, to form the sentences below	
Matching (HP)First answer should jump to the "Correct" Page	
Answer 1:	Engineering
Matches with answer 1:	controls should include all aspects of normal maintenance.
Correct answer score:	0

Correct answer jump:	Next page
Answer 2:	Management
Matches with answer 2:	controls should be integrated for other statutory requirements.
Wrong answer score:	0
Wrong answer jump:	This page
Answer 3:	Behavioural
Matches with answer 3:	controls should always start at the management level and this should be given by example.

Question 3.	
An example of an Engineering control is	
Multiple Choice (HP)	
Answer 1:	fencing and guarding
Response 1:	
Jump 1:	Next page
Answer 2:	Staff selection and specific training
Response 2:	
Jump 2:	This page
Answer 3:	planned preventative maintenance
Response 3:	
Jump 3:	This page
Answer 4:	all of these
Response 4:	
Jump 4:	This page

Question 4.	
If separation of vehicles and pedestrians is not possible in mixed areas - wo has right of way?	
Multiple Choice (HP)	
Answer 1:	Pedestrians
Response 1:	
Jump 1:	Next page
Answer 2:	Vehicles
Response 2:	
Jump 2:	This page

4.0 Example Past Exam Questions.

In order to assist you with your exams and to get a better idea of what types of questions may arise concerning this lesson, please see below some example past questions based around the content.

- **Identify** 3 control measures to segregate pedestrians and vehicles in the workplace.
- **Identify** measures to reduce the risk to pedestrians when segregation is not possible.
- **Outline** controls to ensure that work vehicles are safe.
- **List** 8 design features and/or safe practices intended to reduce the risk of accidents on staircases used an internal pedestrian routes within the work premises.
- **Outline** precautions needed to ensure the safety of pedestrians in vehicle manoeuvring areas.
- **Outline** the means by which the risk of accidents from reversing vehicles in a workplace can be reduced.
- **Identify** types of hazards that may cause slips or trips at work.
- **Outline** how slip and trip hazards can be controlled.

(These questions are here just for reference so there are no answers provided.)

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